Testimony on
Additional Information Needs for
Price and Rate Analysis in a Restructured Market

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Introduction

Question I.A.3. from the February 15, 1996 Committee Order asked Staff to discuss the additional information needed so Staff could more completely respond to questions I.A.1 and 2 on price and rate analyses posed by the Committee. Rather than provide a listing of the additional information required, our discussion addresses the need for more information while considering the additional complexities of analyzing market structures. In this discussion, we point out the areas of direct relevance to Staff responses to questions I.A.1 and 2 in which additional information is needed.

Information Requirements in General

Almost every aspect of the restructured market will be more complex than under the old regulatory regime. No longer will a consumer pay whatever the California Public Utility Commission (CPUC) has sanctioned as the cost of service. Consumers will pay the market prices for many features of electricity. Those prices will be the result of transactions between many market players and the complex interrelationships of the markets for spot electricity, contracts, and financial instruments. Customers may be offered new services in addition to electricity.

Each market participant will consider its financial information as confidential and proprietary. Regulators will find it increasing difficult to obtain the information about participants' costs and financial ability that they require to properly dispense their duties. Contract terms may be held as proprietary to prevent competitors from gaining information about a company's costs. They will also find that the new types of information about providers' costs, marketing strategies, and customer preferences and reactions to marketing strategies are needed to perform analysis of the restructured market.

In the past, the Commission has collected data on broad areas of supply, demand and transmission characteristics of the utility system. Although the Commission has recently reduced the information requirements of outside parties in an attempt to reduce regulatory overhead, much of the information we still collect will be necessary for the Commission to perform its analysis of the restructuring of the electricity industry in California.

In general, the information required to analyze a restructured electricity industry will be greater than currently available under the old structure. The specific information will depend on the scope of the analysis. Possible areas of analysis include how the market for energy would function, how the markets for financial instruments interact with spot and contract energy markets, marketing strategies, consumer acceptance rates (not technical potential) for appliances and Demand Side Management (DSM), customer response to new pricing structures, and customer satisfaction with their retail provider.

Clarification of Market Structure

Overriding all other considerations is a need for clarification of the structure of the restructured industry. Since the CPUC Decision and the initial WEPEX filings are policy descriptions rather than implementation plans, there are many possible interpretations of precisely what will be done. And, to represent a transaction in a mathematical model, precision is required. Many of the issues about implementation of the decision are being worked out in various working groups. Each working group has its own agenda and its own timetable. Much of the discussion in these groups will continue into late summer and this fall. Without more information, it is not possible at this time to do an analysis of restructured markets without a great deal of speculation.

For example, though WEPEX has filed a description of the Independent Service Operator (ISO) and Power Exchange (PX) with Federal Energy Regulatory Commission (FERC), some details about the payment structure may need to be worked out. It is also unclear how the market for financial instruments and contracts will interact with the spot and scheduling markets. Although, we cannot say what specific details are necessary to complete price and rate analyses, we can present examples to illustrate this difficulty. With that in mind, we have analyzed the general data requirements for the several aspects of the restructured electricity market. These are determination of market price, consumer reaction to restructuring, rate design issues, and the determination of the cost of public policy programs.

Determination of Market Clearing Price

We must recognize that there will not be a single, bundled market-clearing price paid to generators. Under the proposals for system operation, at any given time, there will be separate prices for energy, ancillary services and transmission congestion. It will be necessary to specify the time period, location and other characteristics of the particular electricity producer involved. Prices to customers will include transmission access fees, distribution charges, surcharges, the competitive transition charge (CTC), and other uplift elements such as ISO/PX administrative fees.

First, we will need to define the institutional arrangements that constitute this market. Some of these may be economic, social, or contractual. We next need to define the process and stages that the market will undergo as it becomes more competitive. We need to understand the workings of the transmission system as generation becomes more open. We may require a model that fully integrates the generation, transmission, distribution and contractual characteristics of the electricity system on a chronological basis.

In the current electricity markets, what we see is many different prices on the wholesale bulk power market with many different contractual arrangements. Prices may be different for a variety of reasons that are not related to the actual energy. Under a competitive regime, more than one price for energy would also exist for the same reasons as above. To extract the "true" wholesale price from the observed wholesale prices might require advanced econometric analysis or detailed, integrated generation/transmission modeling. It would also require data on actual production costs, transmission constraints, density of use, and the contractual agreements.

Moreover, under a new competitive regime, demand conditions will change as more buyers use the "competitive" market. We will need information on the role of aggregators and the likely participation in direct access over time. In this case, it will not be possible to forecast the price without additional information and more sophisticated tools. Knowing demand elasticities under the current regulatory regime would not help because we are changing the institutional structure of the market. Elasticities are dependent on the market structures in place.

In restructured electricity markets, the consumer's role becomes more important. Consumers may become more active determining their own use of electricity and providers may specifically target consumer groups. These interactions among consumers and providers may not be based solely on price considerations. In this case, we will have to know more about consumer preferences and reactions to marketing strategies.

As of early July, the CPUC has made no decision about the mechanism for recovery of the CTC, nor has a decision been made concerning Pacific Gas and Electric's (PG&E) application for an interim CTC. The design of the CTC may have implications for consumer choices. For example, consumer actions will be different if the CTC is structured as a fixed charge rather than a volumetric charge. The application of an interim CTC (ICTC) may reduce the cost-effectiveness of direct access for some C/I customers or cause them to delay direct access until ICTC is implemented. The uncertainty surrounding the implementation of the ICTC and CTC has a direct impact on customers' decisions about direct access and suppliers' decision to enter the market.

If utilities have considerable market power, then entry by potential competitors and the profitability of current competitors may be adversely impacted. The spot market and the spot price for electricity will be very different than if utilities have less market power. Staff's current market power testimony shows that the PG&E and Edison have and will have large shares of the generation markets. However, we do not currently have an understanding of the utilities' ability of the utilities to maintain or increase market share, of their ability to use prices to deter entry by potential competitors or of their desire to compete in other utility service areas.

Customer Reaction to Restructured Electricity Markets

How will customers react to restructured markets? Customers will react to more than just price signals. Customers are also concerned about different levels of service as well as the amount of money spent on electricity. If the price of electricity is driven to marginal cost as some proponents suggest, market strategies and levels of customer service may become important. How services are unbundled and the cost of those services will be a major determinant in the viability of wholesale aggregators, value-added resellers (VAR) and energy services companies. Without knowing the unbundled cost of services, market penetration by these firms will be difficult.

We do not have sufficient information on customer preferences for energy to do complete analysis of customer reactions to marketing strategies. For example, it is possible that a customer might choose to buy from a VAR that sold a package bundled with frequent flier miles from one of the major airlines rather than from a supplier with a lower price. We also do not have sufficient information on the level of small customers' acceptance of non-utility retail providers. It may be that small customers will not use the services of non-utility providers due to name recognition or uncertainty about service quality or reputability.

Rate Design Issues

At this time, there are few details about the functional separation of distribution and transmission from generation. Functional separation is necessary for customers to make accurate decisions about their choice of electricity provider. In order to analyze the resulting rate structure, it will be necessary to collect information which we currently do not have.

We currently have the ability to develop average system rates given the current structure of the utility and its customer base. We do not have the ability to develop rates if there are major changes in the customer base, such as large industrial customers going off-system or major changes in load shapes. We do not have the ability to measure the effect of changes in system load shape on the rates of different classes of customers.

In order to adequately forecast rates, we will require additional information on the costs of providing different services to customers. For example, our current methods do not disaggregate the utility's existing capital stock by function, i.e. into distribution, transmission and generation. This information has not been available in the past. Disaggregated capital stock information is necessary to develop rates for distribution and transmission. We will need information about the allocation of administrative and general expenses to distribution, transmission and general. Marginal distribution and transmission cost information is needed to allocate distribution and transmission capital and customer costs. Marginal generation costs may be needed to allocate generation capital costs to customers that remain on the utility system.

We would need the information described above for each year in which there are changes in the relative load shapes of different customer groups.

In addition to current information, we would need forecasts of future capital expenditures to meet load growth and to maintain reliability. We would need information on future operations and maintenance expenditures for existing and new plant. We would need to acquire a better understanding of transmission access fees, zonal pricing and congestion fees.

In order to develop estimates of the CTC, it is necessary to have capital cost information on a plant by plant basis. Some information is provided in the FERC Form No. 1, but is not disaggregated by vintage. The capital cost information in the FERC Form No. 1 also does not show the remaining undepreciated balance by plant which would be necessary to determine the remaining book value.

Cost of Public Policy Programs: The Renewable Portfolio Standard, RD&D, Energy Efficiency and Low Income

As mentioned above, the CPUC Decision lacks specific details of the implementation of public policy programs. To address the implementation, the CPUC has sanctioned the formation of working groups on the various aspects of public policy programs. These working groups are developing information to be submitted to the CPUC in August and September.

An evaluation of customer reactions for the restructured electricity market requires the knowledge of the market structure and the interactions of customers, retailers and wholesalers. Public policy programs may have an effect on customer, retailer and wholesaler decisions. For example, suppliers would bid and contract differently if there was a minimum requirement to purchase generation from renewable generators than if no requirement was made. Similarly, residential and business low income customers will make different decisions about use if a low income program directly subsidizes their electricity bill through lower rates rather than a tax rebate.

We would require more information about the implementation of such programs, such as whether costs for these programs would be recovered through a fixed customer charge or a volumetric charge. A fixed customer charge would affect economic decisions the least, but the volumetric charge would soften the impact on many small customers.

For example, a quantitative analysis of the RPS (or any of the other renewable proposals) would require additional information on the costs of existing and future renewable generation. Some of the proposals call for consumers to explicitly order or contract with renewable generators. Information on customer preferences for renewable power would be needed. In essence, we would require information on customer demand and on demand elasticities for renewable power.

A complete investigation would require an integrated demand/supply analysis very similar to the traditional resource planning exercise. This exercise would require an assessment of the supply and demand for non-renewable resources in order to determine the viability of renewable proposals. It also would require that all the information detailed in previous sections of this testimony be available.

Conclusion

An analysis of prices and rates resulting from restructuring will require much more information than is acquired in the ***Electricity Report*** process. It is not possible to detail all the information required. However, we attempted to show how information that is currently unknown will be necessary to complete the analysis referred to by the Committee.

Witness Qualifications
for
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My name is Ben T. Arikawa, and my business address is 1516 Ninth Street, Mail Station 22, Sacramento, California 95814.

I am currently an economist in the Demand Analysis Office of the Energy Forecasting and Resource Assessments Division working on the issues concerning industrial customers.

I graduated from Fresno State University in 1979 with a Bachelor of Arts degree in History and Economics. In 1985 I received my Master of Arts degree in Economics from University of California, Davis.

I have been employed by the California Energy Commission since 1989. I was responsible for out of state power issues and development of resource planning models. I developed financial and rate forecasts for California utilities as part of the Commission's planning functions in the past four Electricity Reports.

Before coming to the Commission, I was employed by Western Area Power Administration as a rate economist. Previous to that I was employed by the Transportation Division of the California Public Utilities Commission as a Public Utilities Regulatory Specialist I and by the Sacramento Municipal Utility District as senior economist. I have also been employed as a lecturer in Economics at the University of California, Davis and Fresno State University.